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ABSTRACT

First year science students at University High School (Illinois State University) begin the year with a 3-week unit on science and technology. This unit, through various means, encompasses the past, present, and future technological advancements and their effects on life and life styles. Each student is given a series of years for which they research and pictorially display the science and technological advancements of the period. The finished product includes a summary of major inventions and scientists, as well as dates and effects on the world for the pictured discoveries. Students develop a better understanding of the impact of these advancements on social issues by conducting an interview with a senior citizen. Students prepare for the interview with a minimum of 25 questions spanning 5 related areas. The senior citizens have the opportunity to express their views on what they perceive to be the problems of today and predict future problems. Students can discuss present technological advancements and future implications after surveying journal articles and viewing excerpts from films. With their background knowledge, students create a three dimensional depiction of life in the future. This unit plan provides specific guidelines for each assignment, samples of time lines and interviews. It is stressed that this unit plan has been designed to successfully integrate the effects of technological advancements on personal life styles and societal issues. (CW)

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"SCIENCE, TECHNOLOGY, AND SOCIETY"

An Introductory Unit

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SE 050 100



Science and Technology: Instructional Activities for Teachers

First year science students at University High School begin the year with a three week unit on science and technology. This unit, through various means, encompasses the past, present, and future technological advancements and their effects of life and life styles.

Each student is given a series of years for which they research and pictorially display the science and technological advancements of the period. The finished product includes a summary of major inventions, scientists, as well as dates and effects on the world for the pictured discoveries.

Students develop a better understanding of the impact of these advancements on social issues by conducting an interview with a senior citizen. Students prepare for the interview with a minimum of 25 questions spanning 5 related areas. Tremendous appreciation for the impact of technology is gained, as students return to class and relate colorful accounts of life before television, radio, and the automobile. The senior citizens in turn have the opportunity to express their views on what they perceive to be the problems of today and predict future problems.

Students can discuss present technological advancements and future implications after surveying journal articles and viewing excerpts for future films such as Soylent Green, Star Trek, 2001, etc... With their background knowledge, students create a three dimensional depiction of life in the future. They may focus on one aspect such as agriculture, or they may build an entire city. A written explanation, verbal presentation, and question and answer defense of their predictions follow.

Specific guidelines for each assignment, samples of time lines and interviews, and a slide presentation showing student projects/presentations will be available. Teachers will leave the session with a unit plan that has successfully integrated the effects of technological advancements on personal life styles and societal issues.

OBJECTIVES FOR SCIENCE AND TECHNOLOGY UNIT

Throughout the approximate three week unit, students will:

1. Improve written and oral communication skills;
2. Become aware of cause and effect relationships;
3. Use the experiences of past generations to formulate hypotheses regarding societal issues of our future;
4. Formulate and defend their predictions of the future;
5. Begin to understand the effect that even the slightest technological advancement may have on existing life and life styles;
6. Use the library as a resource for historical perspectives as well as a source of current journal information;
7. Use their imaginations to creatively display their thoughts about the future of their world.

SCIENCE AND TECHNOLOGY UNIT

ASSIGNMENTS:	DUE DATES*	POINTS POSSIBLE	POINTS RECEIVED
1. Time Line	_____	50	_____
2. Time Line Worksheet	_____	10	_____
3. Movie Worksheets	_____	30	_____
4. Interview	_____	50	_____
5. Journal Article	_____	10	_____
6. Future Project	_____	100	_____
7. Presentation	_____	25	_____

TOTAL 275

* Due dates for each project will be established by your teacher

POSSIBLE EXTRA CREDIT: (Extra credit must have prior teacher approval.)

1. Book Report (Science Fiction)
2. A one page summary of any science fiction movie now playing at your local theaters. Include your own opinion on how realistic you thought the predictions about the future were.
3. A visit to any one of the historical museums listed below:

McLean County Historical Society
Historical documents and exhibits
1-5 p.m. Tues.-Sun. McBarnes Bld.
201 E. Grove St., Bloomington.
Closed national holidays. Free.

Miller-Davis Building & Museum
Recreated 19th century law
office, memorabilia; noon-3 p.m.
Tues., Thurs., Sat.: Front & Main
St., Bloomington. Closed national
holidays. Free.

Include a one (1) page summary and brochure (if possible) from your visit.

4. Your own idea with prior teacher approval.

SCIENCE AND TECHNOLOGY

Project: Time Line Poster

Due Date: _____

Point Value: 50 Points

Assignment:

You are to assemble a collage of pictures that depict, along with a typed description, the milestones of science that occurred in you assigned time period.

Specifications:

1. Use an 8" X 10" plain white sheet of paper
2. The years covered by your assignment should be no larger than 2" X 4" in BOLD PRINT.
3. The description of the highlights must be typed in a 3"X 4" area and can be in either a paragraph or numbered statement format that includes:
 - a. all the major inventions or science accomplishments
 - b. scientists/inventors
 - c. dates
 - d. effect on the world/future of the inventions or accomplishments.

Point Assignment:

Content - 25 Points

Creativity - 15 Points

Follows Directions - 10 Points

SCIENCE AND TECHNOLOGY

Project: Time Line Worksheet

Name: _____

Due Date: _____

CONTINUE ANSWERS ON THE BACK OF THIS SHEET IF NECESSARY.

1. a. Name 5 major inventions or discoveries of the years 4000 B.C. to 0.
b. How have these inventions affected life in the present?

MAJOR INVENTIONS

EFFECT

2. a. Name 5 major inventions of the years 0 - 1987 A.D.
b. How have these inventions affected life in the present?

MAJOR INVENTIONS

EFFECT

3. Compare inventions and discoveries of the B.C. years with those of the A.D. years.
What differences do you see? What similarities?

4. Pick one collage (not your own) that you particularly like.
Write down the time period.
Name 2 things that you learned from the collage.
Describe the significant impact that you feel this particular year's inventions had or will have on future years.

5. Name 1 invention or discovery that you believe we could live without. Explain what life in the present would be like if that discovery or invention had not been made.

SCIENCE AND TECHNOLOGY

Project: Science Fiction Movies

Earth to the Moon

Name: _____

Due Date: _____

1. What type of land transportation did you see in the film?
2. What is POWER X?
3. What evidence do you have to support your answer to question 2?
4. Did Jules Verne know what power X was when he wrote the story, late 1800's?
5. Name several differences between modern day launch vehicles and the one they used?
6. Should the public be in control of science? Why or why not?
7. Do you think Jules Verne predicted the future well? Please support your answer

SCIENCE AND TECHNOLOGY

Project: Science Fiction Movies

Back to the Future

Name: _____

Due Date: _____

1. How are Power X and plutonium similar?
2. If you could travel in time,
What specific year would you travel to: _____
WHY?

3. What five things have changed in Hill Valley from 1955 to the present?

CHANGE

HOW HAVE THEY CHANGED

A.

A.

B.

B.

C.

C.

D.

D.

E.

E.

3. What one thing would you change if you could travel back in time?
What affect would your change make on the world?

SCIENCE AND TECHNOLOGY

Project: Science Fiction Movies

Buck Rogers and the 25th Century

Name: _____

Due Date: _____

1. What are at least five(5) activities that were different in the 500 years from 1987 to Bucks reentry?
 - A.
 - B.
 - C.
 - D.
 - E.
2. Who or What is Dr. Theopolis? What is his Job?
3. How does Dr. Theopolis work?
4. Describe the court system of the 25th century?
5. How have movie special effects changed between the Julies Verne movie and Buck Rogers?
6. In what ways do computers control your life at this time?
7. How do you think computers will control your life 50 years from now?

SCIENCE AND TECHNOLOGY

Project: Senior Citizen Interview

Due Date: _____

Point Value: 50 Points

Most of the people that you will be interviewing were born in the 1900's. They have had the opportunity to experience the events that you read about in your History books. They lived through the birth and advancements of the age of technology. No where else in history has civilization changed so drastically during an individuals own lifetime. Please, take this time to obtain some colorful accounts of your country's education as no history book could tell it.

Criteria: 25 Points

1. List 25 questions that you could possible ask during your interview.
2. The questions asked should pertain to the following areas; at least 5 questions for each.
 - a. What was their life like when they were your age?
 - b. What inventions/discoveries affected their lives the most and why?
 - c. Did they ever imagine that the world would be like it is now in 1987?
 - d. What do they think the world will be like in 50-75 years?
 - e. What are the biggest problems/decisions that they, the country or the world would have to face in the future due to our technological advancements?

Additional Criteria: 25 Points

3. A minimum 3 page paper (preferably typed) to include:
 - a. An introductory paragraph explaining who you interviewed and what you accomplished.
 - b. Body of paper to include:
 1. At least 1 paragraph pertaining to each of the 5 areas regarding your interview.
 2. At least 1 paragraph pertaining to each of the 5 areas of your questions (total minimum of 5 paragraphs) describing how you felt about the answers that the senior citizens gave. Were they what you expected? What did you learn? Did you agree with their future predictions? Why and why not?
 - c. Conclusion to include:
 1. At least 1 paragraph explaining how technological advancements have affected the lives of people over the past 75 years.
 2. Based upon the information gathered in the interview, what patterns can you predict for future technological advancements.

Recap of minimum requirements:

1. 25 Questions
2. 3 Page Paper, at least 12 paragraphs

JOURNAL ARTICLE REPORTS

Science is in the news and happening all around you every day! In today's fast moving society, one must keep up with the current issues and discoveries, as well as study textbooks and experiment in the lab, in order to get a fair view of science. This ongoing assignment is designed to keep you up-to-date.

Assignment:

Read one science journal article and write a report on it.

Topic: _____

Due Date: _____

Format of the Report:

1. List the following information at the top of the report:
 - a. Name of the article (always in quotes)
 - b. Author
 - c. Name of journal (underlined)
 - d. Date and volume number of the specific journal
 - e. Page(s)
2. In one or two paragraphs, briefly summarize the article.
3. What particularly interesting or important facts did you learn from the article?
4. What effect will the information in the article have on our future or our descendants' future?
(one or two paragraphs)

Possible Journals:

Please check the reference desk in the library for current science journals relevant to the topic. Articles must be published in a journal within the last five years.

SCIENCE AND TECHNOLOGY

Project: The Future

Due Date: _____

Point Value: 100 Points

What will your world be like in the future? (50-100 years from now)? Pick an area and put your ideas into a 3-D model. Your subject area may be transportation, advertising, agriculture, the work place, the home, shopping malls, styles, or an entire city. Need help??? Skim through science and tech journals, glance at covers of science fiction paperbacks or thumb through the books we have on reserve at the library for you. Recall some of the inventions that you have seen at museums or the predictions of movies and shows such as Soylent Green, Star Trek, the Jetsons, 2010, Dune, Voyage To The Moon, Buck Rogers In The 21st Century, and Back To The Future.

Your project will be graded as follows:

Criteria	Points
Effort/Use of time	25
Creativity, Originality, Neatness etc.	50
Written Explanation	<u>25</u>
	100

Your written assignment must include:

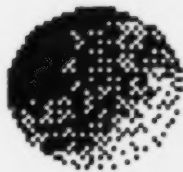
1. An explanation of your project.
2. Your reasons for the predictions that you made.
3. The effect of your predictions on future lifestyles.

Throughout the week of _____ an oral presentation will be given. This presentation will be worth 25 points and must include the information covered in your written paper. Class involvement and discussion of the effects of your predictions are required.

SCIENCE AND TECHNOLOGY

Alternate Assignments:

1. Time Line:
Your time line must depict agricultural advancements which have occurred during the past 250 years. All other criteria as listed on the time line sheet will apply.
2. Citizen Interview:
Rather than interview a senior citizen, we would prefer that you interview a longtime resident of the Bloomington/Normal area. All the criteria listed for the interview should be observed. The questions asked, however, must all pertain specifically to the past, present and future of the Bloomington/Normal area.
3. Future Project:
The goal of this project is to predict what the Bloomington/Normal area will look like 100 years from now. You must rely on sound reasoning for your predictions. Your future project does NOT need to be 3 dimensional. Therefore, maps with future industries, population growth, roads etc. would be acceptable.



**"EDUCATING THE CHILDREN TODAY
IS THE ONLY WAY TO SOLVE
THE PROBLEMS OF TOMORROW."**

KIM LOECHER

UNIVERSITY HIGH SCHOOL

ILLINOIS STATE UNIVERSITY

CLASS OF 1989

